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**Claims**

1. A laser comprising a resonator which is limited by an end mirror (3) and an output mirror  
5 (4) and in which a fibre (2) is arranged that comprises an active core and can be stimulated by pump radiation (6) to have multi-mode laser activity such that a plurality of transverse modes occur in the resonator (3,4), wherein mode mixing occurs in the fibre (2) and wherein the output mirror (4) has reflection properties for laser and pump radiation which vary locally such that the output mirror (4) reflects pump radiation (6) as well as laser radiation that does not exit from the  
10 active core (13) of the fibre (2), and thus couples out low transverse modes predominantly.
2. The laser as claimed in Claim 1, comprising an output mirror (4) which comprises an inner zone (9) and an outer zone (10) surrounding said inner zone (9), wherein said outer zone (10) reflects laser radiation and pump radiation (6) and said inner zone (9) has a lower  
15 reflectivity for laser radiation (8) than the outer zone (10).
3. The laser as claimed in Claim 2, wherein the inner zone (9) is circular, having a smaller diameter than the diameter of the active core (13).
- 20 4. The laser as claimed in Claim 1, wherein beam-expanding optics (12) are arranged between an end (11) of the fibre (2) and the output mirror (4).
5. The laser as claimed in Claim 4, wherein the inner zone (9) is circular, having a smaller diameter than the expanded diameter of the active core (13).  
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6. The laser as claimed in any one of Claims 2 or 5, wherein the inner zone (9) is not coaxial to the radiation exiting from the active core (13).



7. The laser as claimed in any one of the above Claims, whose fibre (2) has a layout in loops or in bends (7) so as to promote mode mixing.
8. The laser as claimed in any one of the above Claims, comprising a fibre (2) whose active  
5 core (13) has a D-shaped cross section.
9. The laser as claimed in any one of the above Claims, wherein an exchangeable output mirror (4) is provided for switching the wavelength or the laser beam diameter.

